

CLAIMS

1. A chemiluminescent device providing multi-shape and optionally multi-color images comprising
 - i) two fluid-impermeable polymer sheets of the same shape, sealed together at their edges to provide a space for reactants, at least one of said sheets being translucent or transparent;
 - ii) one absorbent sheet (pad) having essentially the same shape as said fluid-impermeable sheets and placed between them in said space;
 - iii) reactants capable of producing chemiluminescent effect, comprising at least one chemiluminescent compound, peroxide, solvent, and optionally one or more fluorescent dye;
 - iv) separation means that prevents mixing said chemiluminescent compound and said peroxide before wishing to start said effect; and
 - v) partition means providing that at least one of said reactants does not reach the whole volume of said space during said chemiluminescent effect;wherein said effect is started, and said images are created, by removing said separation means.

2. A device according to claim 1, wherein said two fluid-impermeable sheets comprise polyolefin layer 0.02 mm – 10 mm thick.
3. A device according to claim 1, wherein said pad comprises a component selected from the group consisting of cotton, viscose, polyolefin fibers, polyester, cellulose acetate, polyethylene glycol terephthalate, glass fibers, cellulose, porous PVC, and their mixtures, wherein said component can be woven, non-woven, layered, and further can be chemically cross-linked or modified.
4. A device according to claim 1, wherein said pad is from about 0.01 mm to about 30 mm thick.
5. A device according to claim 1, wherein said chemiluminescent compound is selected from the group consisting of substituted bis(aryl)oxalate and substituted phthalhydrazide.
6. A device according to claim 1, wherein said fluorescent dye is an optionally substituted polyaromatic hydrocarbon, and said peroxide is a hydroperoxide.
7. A chemiluminescent device according to claim 1 providing multi-shape image, wherein said reactants comprise no dye or one dye.

8. A chemiluminescent device according to claim 1 providing multi-shape and multi-color images, wherein said reactants comprise two or more dyes.
9. A chemiluminescent device according to claim 1 providing multi-shape and multi-color images, wherein said reactants comprise three dyes having red, green, and blue colors, from which all other colors are formed.
10. A chemiluminescent device according to claim 1 providing multi-shape and multi-color images, in which the color-forming dyes are pre-mixed before said effect is started.
11. A device according to claim 1, wherein said separation means comprise at least one capsule in which said peroxide or said chemiluminescent compound are closed before starting said effect.
12. A device according to claim 1, wherein said partition means comprises the division of said pad into more unconnected parts.
13. A device according to claim 1, wherein said partition means comprises immobilizing at least one of said reactants on said pad.
14. A device according to claim 1, comprising depositing at least one dye on said pad.

15. A device according to claim 14, wherein said depositing is performed by using a printing technique.
16. A device according to claim 15, wherein at least one dye is deposited to create a pattern that can glow after contacting said pad with said peroxide and said chemiluminescent compound.
17. A device according to claim 15, wherein three dyes having red, green, and blue colors are used to enable forming all colors according to the additive system, and to create multi-color glowing image after contacting said pad with said peroxide and said chemiluminescent compound.
18. A device according to claim 1, wherein said partition means comprises lowering mobility of some of reactants in said space.
19. A device according to claim 18, wherein said mobility is lowered by lowering solubility of at least one of said reactants in said solvent.
20. A device according to claim 1, wherein said space is compartmentalized, and said reactants are separated in different compartments.
21. A device according to claim 20, comprising a capsule array or network.

22. A device according to claim 20, comprising a network of microcapsules.
23. A device according to claim 21 or 22, wherein the capsule distribution ensures the control over the intensity and color of the light emitted from the whole area of said device.
24. A device according to claim 21 or 22, wherein the capsule distribution ensures the uniform glow from the whole area having the same intended color.
25. A device according to claim 1, wherein said reactants are separated in different phases.
26. A device according to claim 1, wherein said separation means are not removed simultaneously in the whole device, so that different parts of the image start to glow at different times.
27. A device according to claim 1, wherein said translucent or transparent sheet is printed on its surface providing a picture or characters seen in the passing fluorescent light, and modifying said fluorescent image.
28. A device according to claim 1, wherein said pad or two sheets have patterns or pictures created on them by non-fluorescent dyes and pigments, enhancing the complexity of said image.

29. A device according to claim 28, wherein said patterns or pictures are printed on the inner or outer sides of said sheets or on one or both sides of said pad.
30. A device according to claim 1, wherein a translucent or transparent sticker is placed on the outer side of said sheets.
31. A device according to claim 1, glowing on both sides.
32. A device according to claim 31, showing different images on said two sides.
33. A device according to claim 1, wherein one of said two sheets comprises a reflexive layer.
34. A process for the preparation of a chemiluminescent device comprising
 - i) providing an absorbent pad in the form of a thin sheet;
 - ii) creating a required shape on the surface of said pad optionally comprising materials capable of producing chemiluminescent effect;
 - iii) contacting said sheet with one or more reactants necessary for producing chemiluminescent effect, which contacting comprises impregnating, soaking, immersing, or spraying; and

- iv) closing said sheet between two fluid-impermeable polymer sheets of a shape similar to the shape of said pad, at least one of said sheets being translucent or transparent.
35. A process according to claim 34, wherein said creating comprises printing or painting or spraying or immersing.
36. A process according to claim 34, wherein said material comprises a compound selected from the group consisting of chemiluminescent compounds, fluorescent dyes, and their mixture.
37. A process according to claim 34, which is automated, taking said pad from a pad stack, or cutting said pad from a pad roll, printing on the pad a picture, possibly according to an instant order of a client, wetting the pad in said peroxide, and sealing the pad within an impermeable plastic bag.
38. An automatic process according to claim 34, providing on the spot a device in the form of a glowing picture, possibly as a ticket, label, tag, advertisement, or personal identification for a short-term occasion.
39. An automatic process according to claim 34, providing on the spot a device, possibly as a ticket, label, tag, advertisement, or personal identification, that can later be activated to show a glowing image.

40. An automatic process according to claim 38, wherein said occasion comprises a performance, disco, entrance to a shopping place, or entrance to a meeting or congress.